

**PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of:

Claude MAUFFETTE et al.

Serial Number: Not Yet Assigned

Examiner: Not Yet Assigned

Filed: September 22, 2003

Art Unit: Not Yet Assigned

For: APPARATUS FOR PACKING OBJECTS INTO AN ELONGATED TUBE

**CLAIM TO PRIORITY UNDER 35 U.S.C. § 119**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

September 22, 2003

Sir:

The benefit of the filing date of the following prior foreign application is hereby requested for the above-identified application, and the priority provided in 35 U.S.C. § 119 is hereby claimed:

**Canadian Patent Application No. 2,412,431, filed November 20, 2002**

In support of this claim, the requisite certified copy of said original foreign application is filed herewith.

It is requested that the file of this application be marked to indicate that the applicant has complied with the requirements of 35 U.S.C. § 119 and that the Patent and Trademark Office kindly acknowledge receipt of this document.

In the event any fees are required, please charge our Deposit Account No. 111833.

Respectfully submitted,

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the Patent Office.

Specification and Drawings, as originally filed, with Application for Patent Serial No:  
**2,412,431**, on November 20, 2002, by **ANGEL CARE MONITOR INC.**, assignee of  
Claude Mauffette, Louis Lefebvre and Yan Tremblay, for "Apparatus for Packing Objects  
into an Elongated Tube".

*L. Régimbald*  
Agent certificateur/Certifying Officer

September 11, 2003

Date

Canada

(CIPO 68)  
04-09-02

OPIC  CIPO

**APPARATUS FOR PACKING OBJECTS**  
**INTO AN ELONGATED TUBE**

**5      BACKGROUND OF THE INVENTION**

**a)      Field of the invention**

10          The present invention relates to an apparatus for packaging objects to be disposed of into pouches formed along a tube of plastic material.

More specifically, the invention relates to an apparatus for use to package waste material like, for example, babies' disposable diapers, into a tube of flexible plastic material and to store the so packaged waste material in an hygienic and odor-free manner, until it is collected.

15          However, it is worth mentioning that the invention is not exclusively restricted to the disposal of waste material.

**b)      Brief description of the prior art**

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Apparatuses of the above mentioned type for use to package a waste material in such a manner as to reduce to a maximum extent the escape of bad odors, are already known. By way of non-restrictive examples, reference can be made to U.S. patent No. 3,452,368 of 1969 (COUPER) and Canadian patent No. 1,298,191 of 1992 (RICHARDS et al).

25

These known apparatuses basically comprise a container having an open or openable upper portion in which the waste to be disposed of may be inserted and a bottom portion in which the disposed waste are stored. A ring-shaped cassette is mounted in the upper portion of the container, for use to store in a  
30          pleated form, a tube of flexible plastic material into which the waste material may

be inserted and stored.

In use, the waste to be disposed of is inserted into the tube at the upper portion of the container and the tube and waste are then pushed through the open center of the cassette towards the bottom portion of the container for storage purpose. Means are also provided for closing the tube below the cassette and thus preventing bad odor from escaping from the tube during storage.

In Canadian patent No. 1,298,191, these means are disclosed as a core that can be turned by a lid about a cylinder in order to twist the tube at regular intervals to form successive "pouches" that are kept sealed while they are stored.

Also known in the art is Canadian application No. 2,383,799 in which is disclosed an apparatus for packaging objects, especially used diapers or other waste material to be disposed of, into corresponding pouches formed along a tube made of a flexible plastic material. The apparatus comprises a container in the upper portion of which a ring-shaped cassette is mounted for storing the tube of flexible plastic material in a compacted form and allowing it to be pulled from the cassette and passed through the same towards the bottom portion of the container in order to receive and store the objects to be disposed while they are inserted into the upper portion of the container. A squeezing device is also mounted in the container below the cassette to pull the tube from the cassette and move it down together with the objects inserted into the container. This squeezing device comprises a pair of opposite rotatable members between which the tube is inserted. The rotatable members have a plurality of opposite bars extending transversely to the tube in order to squeeze this tube, keep it closed until other objects to be disposed of are inserted into the upper portion of the container, and pull it down to move the tube and the objects contained therein towards the bottom portion of the container for storage purpose. Actuation of the rotatable members in unison and in opposite direction to achieve the requested squeezing, closing and pulling down of the tube is preferably obtained by actuation of a closure lid that is part of the container.

**SUMMARY OF THE INVENTION**

The object of the present invention is to provide an apparatus of the above-mentioned type, which includes a simpler mechanism for ensuring that the  
5 objects are properly and hermetically inserted into the tube of flexible material.

In accordance with the invention, the object is achieved with an apparatus for packing objects into an elongated tube, comprising:

a container;

a ring-shaped cassette mounted into an upper portion of said container for  
10 storing the tube of flexible plastic material in a compacted form and allowing it to be pulled from the cassette and passed through the same towards the bottom portion of the container in order to receive and store the objects to be disposed while they are inserted into the upper portion of the container;

a receiving area located below the upper portion of said container, for  
15 receiving an object inserted into said tube; and

a plunging device for forcing said object and a portion of said tube beyond said receiving area and into a bottom portion of said container.

**20 BRIEF DESCRIPTION OF THE DRAWINGS**

The present invention and its advantages will be more easily understood after reading the following non-restrictive description of preferred embodiments thereof, made with reference to the following drawings in which:

25

Figure 1 is a cut-out view of the apparatus, showing the closure member, the flaps, and the slides and the cover, in an open position;

Figure 2 is a similar view as in Figure 1, where the closure member and lid are in the closed position;

30 Figure 3 is a schematic representation of the closure member and slides in the closed position; and

Figure 4 is a schematic representation of the closure member, and slides in the open position.

#### **DESCRIPTION OF A PREFERRED EMBODIMENT OF THE INVENTION**

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Referring now to Figures 1 to 4, there illustrated, in different degrees of detail, the apparatus 1 of the invention.

The apparatus 1 includes a container 3 having a top portion 5 and a bottom portion 7. The two portions are hinged together with a hinge mechanism 9 and can be locked together with a lock 11 located opposite the hinge 9. Preferably, the lock 11 is a child-proof lock, of which many are known to those versed in the art.

At the top portion of the container, there is provided a ring-shaped cassette (not shown in the drawings for clarity). The ring-shaped cassette (not shown) is mounted in the upper portion 5 of the container 1 for storing the tube of flexible plastic material in a pleated form and allowing it to be pulled from the cassette and passed through the same towards the bottom portion 7 of the container 1 in order to receive and store the objects to be disposed while they are inserted into an opening 15 provided for this purpose in the upper portion 5 of the container. For further information on the structure that may have such a cassette, reference can be made to the above mentioned U.S. and Canadian patents. Reference can also be made to U.S. patent No. 4,934,529 (RICHARDS et al).

Also at the top, there is provided a cover for giving access to an opening 15. The cover is preferably spring loaded to open.

The apparatus also includes a plunging device. The plunging device is composed of two arms 21 located laterally of the container 1. The two arms 21 are adapted to move upwardly and downwardly along a predetermined course. Preferably, the two arms 21 are joined together at their respective top ends by a handle 23. The arms 21 are T-shaped at their bottom ends, as shown in the Figures, the purpose of which will be explained hereinafter. At the ends of the T-shaped portion 25, holes are provided for receiving pins of flaps 27.

The flaps 27 are inwardly biased so that at rest, the interlocking edges 29 abut each other, as shown in Fig. 1. Preferably, the bias is effected with a spring 31 secured to each flap 27. Advantageously, two springs 31 are used, one on each side of the flaps 27.

5

The plunging means also include a pair of slides 33. Each slide has a first or top portion 35 and a second or bottom portion 37, the second portion being slightly angled with respect to the first portion, as shown in Figs. 1 to 4. Proximate the apex between the first 35 and second 37 portions of the slide 33, a pivot is located, lying in a horizontal transverse axis, that is allowing the second portion 37 of the slides to pivot towards and away from each other. Preferably, the second portions 37 of the slides 33 are provided with cooperating interlocking means, as shown in Fig. 1.

Also preferably, the slides are biased with one or more springs (not shown) wound about the pivot, biasing the second portions 37 of the slides 33 together.

Referring now to Fig. 2, there is shown the apparatus according to a preferred embodiment of the invention, where the apparatus is closed, that is the arms 21 are inserted within the container, and the cover 17 is closed. As can be seen, the T-shaped portions of the arms, as well as the pivot or pin of the flaps 27, force the slides open. In other words, the pivots of the flaps force the second portions 37 of the slides away from each other.

As the handle 23 is lifted, the cover 17 which is spring loaded gradually opens, eventually giving access to the opening 15. At the same time, the pivots of the flaps 27 slide along the edges of the slides 33. As long as the pivots of the flaps 27 are along the second portions 37 of the slides, the slides remain "open". When the pivots of the flaps 27 reach the pivot point, the movement along the first sections 35 of the slides 33, as well as the fact that the slides are spring loaded, force the second sections 37 of the slides together, that is to close them.

When the arms 21 are completely slid out, as shown in Fig. 1, the cover 17 is open, and access to the opening 15 is provided. The area between the bottom of the flaps 27 and the bottom portion of the slides 33 is defined as a receiving area 39.

5

In use, a user with one hand, places the object to be packed beyond the flaps 27 into the receiving area 39. This is easy to do since the flaps 27 are inwardly biased with enough tension to force them together, but not enough to prevent a user from opening them. It should be noted that the user is prevented from  
10 pushing the object beyond the slides 33 since they are kept closed by the T-shaped portions of the arms 21 which exert an outward pressure on the first portions 35 of the slides 33.

Once the object is placed into the receiving area 39, the user removes his or her  
15 hand, and the flaps close. The user then grips the handle 23 and pushes downwardly. The downward movement along the first portion 35 of the slides compresses the object between the flaps 27 and the slides 33 thereby removing any excess air. When the T-shaped portions of the arms 21 reach the pivot point, the second portions 37 of the slides 33 gradually open. The object is then pushed  
20 beyond the slides 33 and into the bottom portion of the container 3. Furthermore, the fact that the flaps 27 are closed pulls the tube from the cassette downwardly. The object is thus hermetically sealed into the tube located at the bottom portion of the container.

25 When the bottom portion of the container cannot contain any more objects, the user opens the container by opening the child proof lock 11 and pivoting the top portion 5. The user cuts the tube at a portion underneath the slides 33, ties the tube and disposes of it accordingly. The user also ties a knot at the now open end of the tube. The user then closes the container 3, and it is ready for use again.



Th present mechanism is an improvement over the prior art, and notably Canadian patent application no. 2,383,799, in that there are less moving parts that are susceptible to jamming or breaking. Furthermore, assembly of the apparatus is simpler. Finally, the apparatus uses less tube than prior art devices since the  
5 length of the plunger, i.e. the distance between the open and closed positions of the apparatus are shorter.

Another advantage of the present invention is that if there are no objects placed in the receiving area, the tube will not be entrained, as opposed to the prior art,  
10 where opening and closing of the arms will pull the tube into the bottom portion of the container, whether or not an object is placed in the tube.

It will also be understood that the objects to be used with the present invention are preferably soiled diapers, but any other object of appropriate size may be placed  
15 therein.

Although the present invention has been explained hereinabove by way of a preferred embodiment thereof, it should be pointed out that any modifications to this preferred embodiment within the scope of the appended claims is not deemed  
20 to alter or change the nature and scope of the present invention.

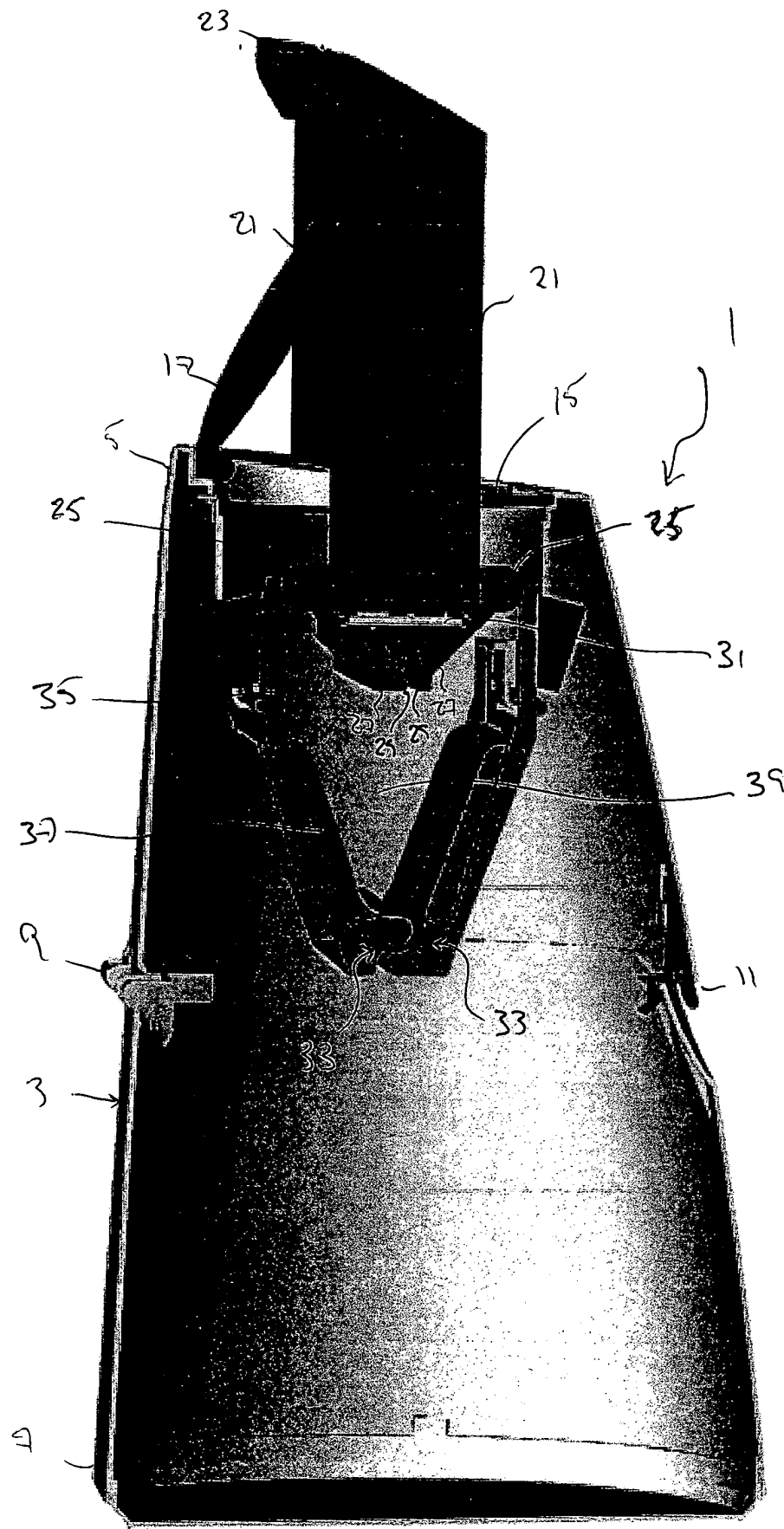


FIG. 1

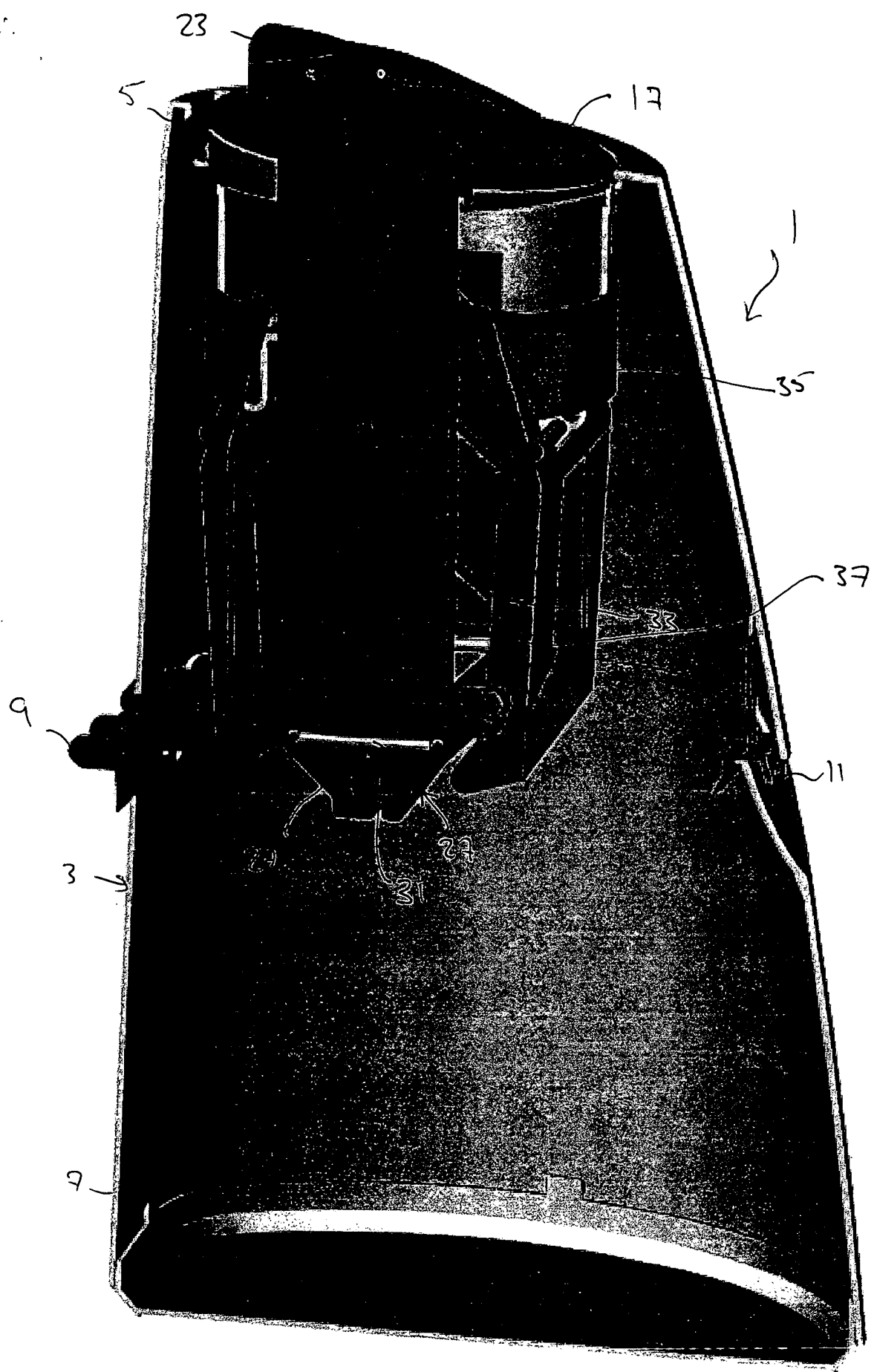
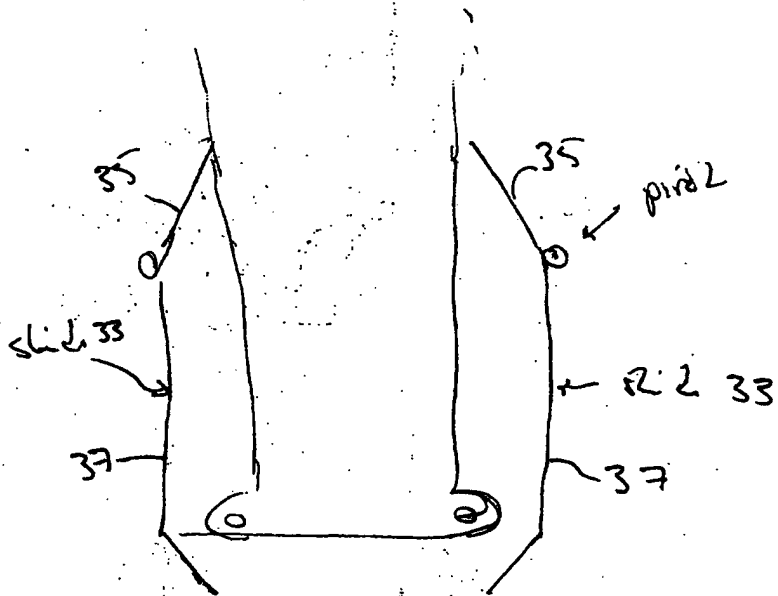


FIG. 2

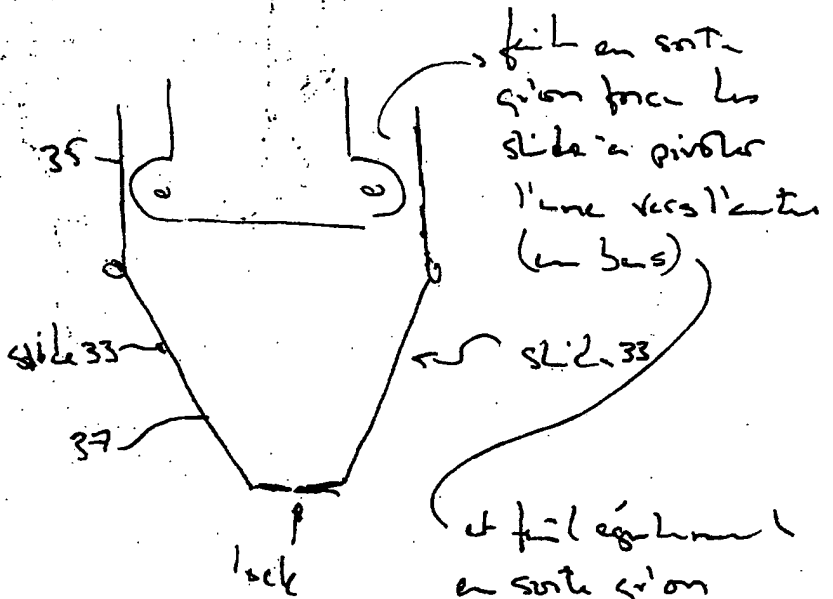
position  
couvercle  
fermé

Fig. 3



couvercle  
ouvert

Fig. 4



et fil également  
en sorte qu'on  
ne peut pas pousser  
le couvercle pour  
les slide